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Abstract

FRANCE'S NUCLEAR POWER PROGRAMME

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The prospects of development of France's consumption of electricity will widen the deficit of her national energy resources.

Nuclear power stations should enable this deficit to be reduced, provided a certain number of uncertainties prevailing today are resolved.

The first programme, put forward by Messrs. Ailleret and Taranger at the 1955 Geneva Conference aimed at commissioning 850 MWe by 1965 ; the programme was devoted to developing the natural uranium-graphite-gas sequence and reaches its completion with the construction of EDF 3, the world's first unit capable of 500 MWe.

Before changing over from the prototype stage to their duplication, Electricité de France decided, in agreement with the Commissariat à l'Energie Atomique to build EDF 4, wich, while reproducing EDF 3's reactor, together with the refereling equipment, the entire control equipment and various other systems, pioneers an important innovation by incorporating the heat exchangers and fans inside the prestressed concrete pressure-vessel housing the core.

At the same time, studies are being carried on on the same type of reactor enabling possible use of a new annular-shaped fuel element, whose use

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would considerably improve the performance of EDF 5, to be envisaged.

On the heavy water side, the construction of EL 4 at Brennilis jointly by the Commissariat à l'Energie Atomique and Electricité de France is continuing. Design work on a 500 MWe reactor of this type has already started.

As regards pressurized water reactors, the Chooz power station is built jointly by Electricité de France and Belgian Utilities.

Finally, the Commissariat à l'Energie Atomique is continuing the construction of the "Rapsodie" rapid neutron reactor at Cadarache, together with studies on a larger power reactor.

It may thus be seen that the technical and economic knowledge gained on these various types of reactor mean that an equipment program may be contemplated which will endow nuclear power stations with a place of ever-increasing importance, by using the country's resources of natural uranium, and later plutonium, to the best ends.